A PRELIMINARY INVESTIGATION OF THE ROLE OF CYTOCHROME C OXIDASE IN SWAYBACK DISEASE IN SHEEP

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An investigation of swayback disease is carried out at the biochemical and pathological levels. Mitochondria and cytochrome C oxidase were isolated from the brains of six swayback and eighteen normal sheep. SDS electrophoresis revealed that compared to mitochondria from normal sheep lipid depleted mitochondria from swayback animals had a different banding pattern in the 45-65 kd region. Polaragraphic studies using cytochrome c as substrate, indicated that mitochondria from the normal and swayback sheep had similar Michaelis Menten constants (KM $\approx$ 2,4 μM) and similar specific activities. SDS electrophoresis of the purified cytochrome C oxidase showed that both the normal and swayback enzyme had about eleven subunits ranging in molecular weight from 6-45 kd: the banding patterns observed were very similar if not identical. The apparent KM and the specific activity for both forms of the purified enzyme were also very similar, however biphasicity a characteristic feature of cytochrome C oxidase kinetics was not observed for the swayback enzyme. At the pathological level, major findings include: necrosis of the purkinje cells of the cerebellum, the large ventral horn cells of the spinal cord and some nuclei of the brainstem.

Source: https://www.industrydocuments.ucsf.edu/docs/nzdb0000